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## **Sovereign Bond-Backed Securities in EMU:**

**Do they mean accrued safety in the European sovereign debt market  
or simply a way to ‘privatize’ public debt?**

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**Abstract:** The aim of this article is to verify whether the creation of safe assets (sovereign bond-backed securities, SBBS) proposed in 2012 by the so-called group of ‘euro-nomics’ is a way to promote financial safety and risk-sharing in the EMU. In particular, attention is given to the shortcomings associated with the process of securitization. This is important, because securitization was, prior to the subprime crisis, considered an innovative means of increasing safety in private debt markets. The question is whether sovereign debt is a candidate for securitization and, if so, what implications this carries over to the debt structure itself and respective contractual design. My conclusion is that the creation of SBBS really implies a ‘privatization’ of sovereign debt, with advantages to the functioning of financial markets in ‘normal’ times but with possible insufficiencies in moments of financial distress. Moreover, lessons from the subprime crisis should not be forgotten.

**Keywords:** safe assets, sovereign bond-backed securities, securitization, subprime crisis, sovereign debt

JEL classification: E6; G01; G1; G2; H63

## Introduction

In the aftermath of the Euro area (sovereign debt) crisis, proposals and roadmaps for EMU reforms have multiplied both on an institutional basis (at the EU level) as well as stemming from academia and think tanks. Amongst such proposals, the institution of a safe asset has gained momentum in the last few years, as an alternative to the institution of Eurobonds (advocated initially by De Grauwe and Mosen, 2009 and popularized with the ‘blue/red bonds’ proposal by Delpla and von Weizsäcker, 2010). The fact is that, since the beginning, the institution of Eurobonds faced political resistance as it was accused of promoting institutional moral hazard and of jeopardizing fiscal discipline in EMU countries, especially those with a worse fiscal track-record.

On the other hand, a safe asset is presented as a way to overcome the so-called ‘*safety trilemma*’ faced by the EMU, according to which one of these goals has to be dropped: euro area stability; open capital market; and national safe haven (Riet, 2017).

For the proponents of the creation of safe assets (the ‘euro-nomics group’),<sup>1</sup> these are a way to overcome the ‘financial trilemma’, where a national safe haven gives way to a euro one, thereby restoring safety in (EMU’s) debt markets. In particular, the safe

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<sup>1</sup> Brunnermeier *et al.* (2012, 2016). Subsequently, in 2016, the European Systemic Risk Board (ESRB) commissioned a *High-Level Task Force on Safe Assets*, chaired by Philip R. Lane, to investigate the practical considerations relating to sovereign bond-backed securities (SBBS). The final Report is here referred to as ESRB (2018).

asset<sup>2</sup> would be able to cope with two problems inherited from the Euro crisis: *i)* ‘Doom-looping’ between sovereign and banking debts; *ii)* The flight of capital to a national safe haven in the event of distress. In fact, the safe asset would give banks an alternative to sovereign bonds and the flight of capital to a ‘safe haven’ would no longer be across borders, but across different financial instruments issued at the European level (Brunnermeier *et al.*, 2012).

### **1. Securitization and the memory of the subprime crisis**

Although several complex causes can be merged to explain the subprime bubble – e.g. the interaction between economic expansion and easy access to credit with financial deregulation and a permissive monetary policy – a usual frontline reason arises: the subprime crisis was mostly related to undue consequences of financial innovation, and in particular of the development of securitization techniques.

Indeed, the financial system has suffered major innovations since the late 1980s onwards. Haan *et al.* (2012, pp. 29-33) identify two main changes. Firstly, the traditional banking model, in which the issuing banks holding loans until they are repaid (the *originate-to-hold model*) was replaced by the *originate-to-distribute, OTD model*. In this model, banks pool loans (e.g. mortgages) and then tranche them and sell them via securitization. Secondly, this securitization has in turn led to a non-regulated *shadow banking system*, made to support the characteristic bank function of maturity transformation outside banks – through off-balance sheet vehicles, e.g. conduits and special purpose vehicles, SPVs (Haan *et al.*, 2012).

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<sup>2</sup> A safe asset is “a marketable financial claim on public or private sector entities that investors consider to offer a convenience yield because of its special attributes in terms of moneyness, liquidity, volatility and in particular its safety” (Riet, 2017).

The main consequences of financial innovation are that they can improve payments, savings and investment opportunities and may increase risk sharing (Haan *et al.*, 2012, p. 227). Notwithstanding that, this evolution also suggests that even though there are far more participants able to absorb the risks, the financial risks meanwhile created by the system are indeed of greater magnitude (Rajan, 2005, p. 4).

A good synthesis of the initial events of the subprime crisis can be found in Bullard *et al.* (2009, pp. 404-406). In the U.S. during the housing boom of the 1990s/2000s, a rapid rise in the sharing of nonprime loans took place, especially mortgage loans with unconventional terms (e.g. adjustable interest rates). Many of these borrowers were homebuyers with a weak credit performance including low income-to-loan ratios. The amount of nonprime loans sold by the lenders to other financial institutions also increased sharply, through the development of the market for mortgage-backed securities (MBSs).

These MBSs, based on pools of mortgage loans allowed for the redistribution of the income stream from the underlying mortgage pool among bonds that differ by the seniority of their claims (Bullard *et al.*, 2009, p. 406). Sometimes, additional securities – collateralized debt obligations, CDOs – were created by combining several MBS and which were then sold by tranches to investors with different appetites for risk (*Ibidem*, p. 406).

Therefore, while house prices rose, mortgages performed well; when houses prices began to decline, borrowers discovered that they owed more than the value of the house they had bought. Consequently, from 2006 onwards, loan defaults began to rise steadily, which ultimately caused related MBS and CDO defaults as well (Bullard *et al.*, 2009, p. 406).

As mentioned by Hellwig (2009, pp. 7-8), securitization has been at the origin of the crisis, coupled with a specific feature of housing and real-estate finance – the *maturity mismatch* or the discrepancy between the long economic lifetime of these assets and the investment horizons of the investors, usually of a much shorter duration.

Hellwig (2009, pp. 11-14) notes then that the development of a system of real estate finance based on MBS (the heart of securitization) was justified by three main reasons: *(i)* Firstly, securitization permits the originating institution and the debtor to shift away the risk to other market participants in better conditions to bear it; *(ii)* Secondly, the marketing of these securities should also enable better international risk allocation; *(iii)* Thirdly, the formation of packages, in itself, makes economic sense, since this is supposed to mitigate information problems, and therefore to promote risk sharing between investors.

If, by itself, securitization is a way to cope with maturity mismatch and to ensure liquidity in certain financial markets, thereby seeking to increase the efficiency (and safety) of those financial markets, the problematic way securitization evolved, together with the subprime bubble, explain the eruption of the subprime crisis.

The first problem was that most of the MBSs did not enter insurance company or pension fund portfolios (i.e. of regulated institutions) but highly leveraged institutions that were engaged in substantial maturity transformation and in constant need of refinancing, and not subject to any kind of regulatory requirement.

The second problem was that the basis of the securitization chain was the deterioration of credit quality, conducive to weak performing loans, and securitization was meant precisely to dilute the risks and consequences of this burden on bank balance sheets.

And yet, paradoxically (as a third problem), unlike what should have happened in a pure OTD model, securitization did not mean that credit-originating institutions really transferred credit risks to market investors. Banks retained most of the risk across a variety of instruments, notably, through tranching and the creation of CDOs (Acharya *et al.* 2009a, p. 21). Jaffee *et al.* (2009, p. 71) state: “the financial crisis occurred because financial institutions did not follow the business model of securitization. Rather than acting as intermediaries by transferring the risk from mortgage lenders to capital market investors, they became investors. They put ‘skin in the game’”.

Another important feature of the securitization process was the link to swap instruments (derivatives) – e.g. ‘credit default swaps, CDSs’. This relation is in principle justified by these reasons (Acharya *et al.* 2009b, pp. 233-234): *i*) Risk management; *ii*) Price discovery (derivatives allow market participants to extract forward-looking information about the functioning of the market); *iii*) Liquidity - either by bringing the market additional players to the market or by providing a hedge to market makers, reducing transaction costs. Derivatives face, however, several drawbacks, the most important of which is the complexity and lack of transparency within the system, notably when these derivatives are traded ‘over-the-counter, OTC’ (*Ibidem*, p. 235).

The purpose of this initial description was thus to shed light on the main features of securitization in the subprime mortgage market (which is a private debt market) and the main problems related to the implementation of its business model. This is important when it comes to verifying whether the justification for securitization given by them in this market exists today for the case of the sovereign debt market, that is, to identify similarities and differences between the two types of markets. Most of all,

I intent to highlight the problems - to be avoided - in the implementation of the new 'safe assets' keeping fully in mind the memory of the subprime crisis, its triggers and effects.

I will start that reflection by analyzing the differences in the structure of public debt when compared with private debt, and in particular with corporate debt.

## **2. The different structure of public debt in comparison to private corporate debt**

As noted by the IMF (2004), sovereign liability structures are not as rich as those of the corporations. There are two main reasons for such different structures.

The first reason is that much of the financial structure in private companies is based on equity (stocks) or equity-like instruments, such as convertibles (*e.g.* bonds that can be converted into stocks at a pre-determined date at a certain exchange rate) or contingent convertibles (the conversion occurs when certain events occur). Whenever the financial structure is based on these kinds of instruments, investors share fortunes and misfortunes suffered by the company.

Unlike private debt, in the case of sovereign debt, the financial structure does not incorporate this kind of risk-sharing mechanism that underlies a structure based on equity (debtors are outsiders with respect to the financial structure). On the other hand, we are dealing with incomplete contracts, because the repayment cannot be made contingent on the realized level of output (Bolton and Jeanne, 2008). Although renegotiation can involve some *ex-post* state contingency, the fact is that it tends to be a lengthy and costly process (Aguiar and Amador, 2013). Debt restructuring in particular may involve borrowing and signalling costs, along with reputational issues.



The inexistence of these equity instruments – working as risk-sharing mechanisms within the company’s financial structure – can however be overcome in the sovereign debt financial structure. As mentioned by the IMF (2004), the benefits of risk-sharing can be mimicked through financial instruments with payment terms indexed to real variables, such as gross domestic product (GDP).<sup>3</sup>

Payoff structures of GDP-indexed bonds link the size of interest payments to the issuing country’s rate of economic growth (Ahrend *et al.* 2011): higher interest rates in good times and lower rates in moments of economic downturn. GDP-indexed bonds can reduce the likelihood of debt crises, acting as an automatic stabilizer against pro-cyclical spending: when countries are hit by a negative macroeconomic shock, the lower interest payments reduce the need for fiscal adjustment (austerity) or additional and costly borrowing (Ahrend *et al.*, 2011).

However, despite these properties of GDP-indexed bonds, shortcomings still remain (Ahrend *et al.*, 2011). For lenders, the absence of a liquid secondary market for such bonds can be problematic. Moral hazard can also be a source of concern and issuing governments may be tempted to manipulate statistics in order to reduce their payments with interests. On the other hand, from the borrowers’ perspective, paying an insurance premium (*i.e.* higher interest rates) during periods of strong economic growth can be considered as politically unacceptable (Ahrend *et al.*, 2011).

In short, as noted by Blanchard *et al.* (2016), growth-indexed bonds have two effects on debt dynamics: on the one hand, they decrease the upper tail of the distribution of the debt ratio; but, on the other hand, they may also require a premium (to cope with default, novelty and liquidity risks), which may lead to a worse baseline and offset the first effect.

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<sup>3</sup> See the seminal contribution from Shiller (1993).

The second reason that justifies differences of structure between private and sovereign debt relates to the inexistence, in the latter, of an explicit seniority structure, which at the corporate level is naturally required by statute or through bond covenants (IMF, 2004). This is indeed the second reason why we are dealing with incomplete contracts: the repayment of the first lender cannot be made contingent on the contract with the second lender (Bolton and Jeanne, 2008).

As a result, sovereign creditors are more exposed to '*debt dilution*' than are their corporate counterparts: "Debt dilution occurs when new debt reduces the claim that existing creditors can hope to recover in the event of default" (IMF, 2004, p. 7). As a reaction to debt dilution, investors may tend to impose *de facto* forms of seniority, such as the replacement of long-term by short-term debt and/or by debt that is more difficult to restructure. This option involves, in turn, serious dangers for the borrower counterpart, including increasing borrowing costs. Note that, in principle, short-term debt makes governments more vulnerable to debt rollover crises: in the extreme case, creditors stop lending to the government simply as they expect others to do the same; if the average maturity of debt is low, the government will be at the mercy of self-fulfilling creditor panics that can be triggered by shifts in market sentiment (IMF, 2004, p. 24).

Moreover, corporations issue liabilities belonging to several classes with different priority in the event of liquidation or bankruptcy: secured debt; ordinary unsecured debt; subordinated debt; preferred stock; common stock (IMF, 2004, p. 22). Additionally, corporations make extensive use of securitization, through structured financing (e.g. collateralized debt), as a way to meet liquidity needs and assign risks related to maturity mismatching to other institutions (e.g. SPV) more appropriate to

assume such risks. In contrast, sovereign liabilities usually fall into one single class (unsecured debt) and the secured debt is residual, where sovereign claims are collateralized by future receipts - e.g. oil revenue or other exportable receivables (IMF, 2004).

To cope with this peculiar structure, several proposals have been made advocating the introduction, on the one hand, of explicit mechanisms of seniority and, on the other hand, more diversified classes of secured and unsecured debt, including in-between classes.

As for the former suggestion, Chatterjee and Eyigungor (2015) explain that an explicit seniority structure within debt can mitigate the dilution problem (e.g. the shift towards short-term debt), because existing creditors do not have to share default payments with new creditors. At the same time, seniority could curb over-borrowing for politically biased countries with excessive borrowing and at the same time reduce the costs of borrowing for countries with low levels of debt (IMF, 2004).

Even if the introduction of explicit seniority reveals unfeasible, analogous, implicit forms can be introduced, in order to protect the financial interests of creditors by restricting the borrowing's financial decisions. This is the case with (negative) covenants,<sup>4</sup> that is, quantitative fiscal rules limiting budget deficits or placing limits on (external) debt (IMF, 2004, p. 23) and eventually expenditure ceilings.

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<sup>4</sup> Note that covenants (in the corporate financing structure) can be either positive or negative, in the event of involving, respectively, impositions or prohibitions on the debtor. Negative covenants – the most common – can include, for example, clauses implying limits to indebtedness or borrowing, restrictions on the distribution of dividends, negative pledge clauses, restrictions on investment, mergers prohibition, etc.

In turn, the introduction of new forms of secured sovereign debt can be conceived: on the one hand, fiscal buffers fed by tax revenues obtained at good moments of the cycle; on the other hand, the constitution of debt reserves (e.g. deposits) based on prudent debt management, including the debt rollover and debt issuing in good times (e.g. low interest rates) to ensure reserves to meet financial needs in times of distress. Moreover, processes of securitization, relying on structured financing, are not out of sight. Indeed, public debt is, in principle, also a plausible candidate for securitization, in particular for the creation of CDOs involving tranching and the definition of different degrees of seniority (e.g. senior, mezzanine and junior tranches). Safe assets – in their various forms to be analysed in the following sections - correspond precisely to this attempt to ‘securitize’ the public debt market.

For the time being, see Table 1, which summarizes the way the structure of sovereign debt can therefore be approximated to the structure of corporate debt.

**Table 1 - Approximating the structure of sovereign debt to the structure of private debt**

<b>Elements of debt structure</b>	<b>Corporate private debt</b>	<b>Sovereign (public) debt (mimicking private debt)</b>
Equity base for financing	Equity or equity-based instruments (e.g. convertibles)	GDP-indexed bonds
Seniority	Explicit seniority: (i) Statutory seniority or (ii) Driven by covenants	Explicit or implicit seniority (to cope with unwanted <i>de facto</i> seniority): - Explicit: contractual seniority;

		- Implicit: negative covenants (fiscal rules: deficit, debt or expenditure limits).
Secured/unsecured	Different classes of financing (secured and unsecured)	New classes of (implicit) secured debt: (i) Fiscal buffers and (ii) Debt reserves.
The role of securitization and hedging	The reliance on structured finance (e.g. CDOs) The use of derivatives (e.g. CDS)	Safe Assets (SBBS)

*Source: the Author (2019)*

### **3. Debt restructuring as the ‘natural’ response for sovereign debt crisis and yet difficult to obtain<sup>5</sup>**

The different structure of public debt in comparison to private debt implies differences from the debt management point of view. In particular, in the case of a debt crisis, debt restructuring is the ‘natural’ outcome. In fact, unlike what happens in the case of a private company bankruptcy, where the insolvency mechanism is an asset liquidation type, in the case of insolvent governments the mechanism is generally of a reorganization type: debt restructuring lies at the heart of any insolvency framework (Liu and Waibel, 2008).

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<sup>5</sup> For further development on this issue, Cabral (2020).

In fact, the Greek case constitutes an example of a ‘muscle’ decision of sovereign debt restructuring in the course of the Euro crisis. Prior to the Second Adjustment Programme (2012), the Eurogroup decided to promote Greece’s debt restructuring, in order to prevent a selective default. In the words of Xafa (2014), “the 2012 Greek debt exchange and subsequent buyback was (...) the largest debt restructuring in the history of sovereign defaults, and the first within the Eurozone.”<sup>6</sup>

Although debt restructuring can be seen as a *natural* response for public debt, the fact is that, as noted by Bolton and Jeanne (2008), the structure of sovereign debt is usually designed to make debt-restructuring more difficult. In fact, with the debt crises of the 1980s that affected several emerging economies, the so-called ‘willingness-to-pay problem’ was highlighted: a policy intervention that aims to reduce the costs of restructuring sovereign debt, while improving ex-post efficiency, will undermine ex-ante efficiency by raising the cost of borrowing and reducing the amount of lending available (Bolton and Jeanne, 2008). As also noted, the shift verified since the 1980s from bank loans to bonds in sovereign finance is partially explained by the fact that investors see bonds as more secure than bank loans, simply because the former are more difficult to restructure (*Idem*, 2008). This also explains why orderly mechanisms for debt restructuring have faced so much resistance and are usually seen as a way to weaken enforcement mechanisms within debt contracts and to attack the contractual equilibrium and the fair treatment of creditors.

In fact, all the attempts to frame, on a multilateral basis, debt restructuring processes, *per se* or enclosed in a package of financial assistance (as were/are the programmes provided by the IMF) have been only moderately successful. It was the case with the

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<sup>6</sup> For more details on this haircut, see Zettelmeyer *et al.* (2013) and Cabo (2017).

proposal for the institution of ‘Sovereign Debt Restructuring Mechanisms’ (SDRM), made under the auspices of the IMF in the mid-1990s. This proposal can be qualified, on the other hand, as a nuanced version of the market-based approach of debt restructuring with features of the statutory approach.

The market-based approach relies mostly on the so-called ‘Collective Action Clauses’ (CACs). As explained by Guzman and Stiglitz (2014), at the origin of these clauses (in the mid-1990s) was the intention of the International Capital Market Association (ICMA), supported by the IMF, to change the language of debt contracts. CACs are meant to allow bondholders across different series of bonds to vote collectively in response to a restructuring proposal, and the decisions of a super-majority would be binding to all the bondholders across all series.

Despite the good intentions behind this approach, Guzman and Stiglitz (2014) consider that it is not sufficient to address the current problems that the restructuring process faces, notably the blockage veto from vulture funds,<sup>7</sup> the prevention of unjust enrichment and the existence of distortive CDSs.

In a similar vein, Berensmann (2011, p. 197) identifies three main problems to the CAC approach. Firstly, the *rush to the exit problem*, that occurs if the creditors fear that a debtor may be heading for a debt crisis, in which case they will seek to sell their claims. Secondly, the *rush to the courthouse problem* that leads creditor to take legal action to recover their claims, in the event of default, resulting in a fall in the value of the assets concerned, which can be detrimental to all creditors involved. Finally, the

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<sup>7</sup> Guzman and Stiglitz (2014) recalling the Argentine case in the 1990s, stress that the disruption of the restructuring process was due to the judicial action taken by ‘vulture funds’ that had bought defaulted assets (debt) and then demanded full payment, blocking the super-majority pro-restructuring assumed in the CAC.

*holdout problem*, where a minority of creditors can block a debt restructuring process that could be advantageous to the majority of the creditors. On this latter aspect, the Greek case (together with the aforementioned Argentine episode) is also illustrative. Here, the holdout problem was not entirely overcome. In fact, while the abovementioned CACs ensured that the entire Greek-law bonds were exchanged, some holders of foreign-law bonds decided to hold out for full payment (Xafa, 2014). To avoid an Argentine-style litigation, holdout creditors were paid in full (Xafa, 2014).

Alternative models to the market-based approach have been advocated. The proposal made by Guzman and Stiglitz (2014) for the implementation of a (multinational) legal framework for sovereign debt restructuring is an illustration of what can be qualified as a statutory approach. Here, we are no longer uniquely facing a contractual/voluntary framework for debt restructuring. We are assuming the codification of principles, the settlement of multilateral legal rules and possibly the institution of *super partes* multilateral courts (or arbitration courts) assigned with the task of adjudicating a restructuring decision involving the sovereign debtor and (all of) its creditors.

The evolution from a typical market-based approach to a statutory approach mostly depends on the nature of the creditors and on the type of relationship that exists between them, including spillovers or contagion effects. Indeed, the departure point for the implementation of an ordered (and eventually centralized) plan for debt restructuring is the recognition that restructuring is a ‘lesser evil’, when the alternative is a disorderly default that can result in not only severe reputational consequences for



the defaulter,<sup>8</sup> but also severe contagion effects (first and foremost to the lenders themselves). The restructuring plan that was presented to Greece reflects the risks that other EMU countries (including the respective financial and banking sector) faced in the event Greece failed to meet all its obligations vis-à-vis its lenders at the time.

Debt restructuring is also related to the nature of creditors: in principle, the more disseminated the debt holding is (through a plurality of bondholders), the more securitized (e.g. bonds instead of loan contracts), and the more it is held by private instead of 'official' creditors, the more difficult it is to agree and succeed with a debt restructuring process.<sup>9</sup> On the other hand, debt restructuring can also imply a shift in the debt structure and a replacement of typical private, by institutional, official debt, particularly when it is coupled with financial assistance programmes. The Greek case after the restructuring is again illustrative, where the major lenders became the IMF and the EU.

It is not accidental that several proposals – within the reform of EMU's fiscal governance - made in recent years include measures for orderly debt restructuring. They take into account that future restructuring will be asked to countries (already) in

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<sup>8</sup> Note that sovereigns seldom default on their debts (Rogoff and Bulow, 1988), and this is explained by several reasons. Indeed, considering historical examples, default countries can suffer sanctions, either explicit sanctions - e.g. trade retaliation, fiscal house arrest and military reaction - or implicit sanctions (on reputational grounds), e.g. increasing borrowing costs that ultimately can prevent indebted countries from having access to financing markets.

<sup>9</sup> Eaton and Fernandez (1995) highlight that in the presence of multiple creditors, the problem is not just of coordination amongst them, but also the so-called heterogeneity problem. In particular, small lenders have greater incentives to free ride.

fiscal distress, as some peripheral countries are. As noted previously, most of these countries – such as Greece and Portugal – have as their main creditors, official creditors (that is, the ‘Troika’ members) and not, as until the crisis, private creditors. So, assuming as a possibility, future financial bailouts through the existing mechanisms (in particular the European Stability Mechanism, ESM), it is expectable to assume debt restructuring as an element of the package for that same assistance.

The most radical and fully centralized debt restructuring proposal (to solve the EMU sovereign debt crisis) was presented by a group of economists led by Pâris and Wyplosz (2014): the proposal was coined as the *PADRE plan*. This plan can be qualified as the ultimate version of the statutory approach, because it does not only include the centralized design of legal rules for debt restructuring (around which creditors should agree), but also a centralized management of the restructured debt (possibly by the ECB itself).

#### ***4. Models of debt issuing in the EMU: from debt mutualisation to debt securitization***<sup>10</sup>

E(M)U is far from having a euro area fiscal authority or a Treasury able to issue ‘risk-free’ Eurobonds, based on a joint and several guarantee from all participating countries (Riet, 2017). Initial proposals for debt issuing at the E(M)U level involved some kind of mutualisation (debt pooling), that is, some kind of mutual guarantee at the central level.

Within this mutualisation model – also known as ***Eurobonds*** - the most noteworthy proposal, amongst several others, was the one made by Delpla and von Weizsäcker (2010). The proposal relied on two categories of bonds: a blue and a red bond. The

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<sup>10</sup> For further development on this issue, Cabral (2020).

former would correspond - up to 60 percent of GDP of each Member State's national debt – to a joint senior sovereign debt, with reduced borrowing costs. The latter would correspond to any additional debt beyond the threshold and would be issued as national junior debt, with a procedure for orderly debt default. In this case, the increasing marginal cost of public borrowing would help to enhance fiscal discipline (*Idem*, 2010).

Matziorinis (2011) detailed the main advantages for the creation of Eurobonds. Firstly, they would immediately resolve the euro debt crisis – a common debt instrument backed by all euro area countries would lead yields to fall significantly (Matziorinis, 2011). Secondly, by reducing the interest rate, such new bonds would save governments considerable amounts of interest payments, thereby reducing future budget deficits and improving debt sustainability in the long run. Thirdly, such an instrument would reduce the degree to which peripheral countries would need to apply austerity measures, reducing the risk of economic recession. Fourthly, it would transform the currently fragmented European financial market for sovereign bonds into one single and vast European bond market. Fifth, the Eurobonds would help to strengthen the role of the euro as a global reserve asset and currency (*Idem*, 2011).

However, as also noted by the same author, the creation of these types of bonds was not without disadvantages (Matziorinis, 2011). The first was that it might raise the interest rates of the most creditworthy countries, in particular those paid by Germany. Secondly, such a bond might remove the disciplining effect of capital markets on the ability of member states to issue more debt and would institutionalize moral hazard.

Due to the political resistance faced by these debt-pooling approaches (mostly related with the problem of moral hazard), more recent proposals dispense with this feature

and rely on the simple idea of making those sovereign assets safer (Lannoo and Thomadakis, 2019, p. 31).

As noted in this regard by Brunnermeier *et al.* (2012), modern financial systems rely heavily on safe assets. As such, prudent bank regulation – in line with Basel Accords – requires banks to manage the risk in their assets in proportion to their capital. Pension funds are another example of a large class of investors that must hold a significant share of safe assets (Brunnermeier *et al.*, 2012). The fact is that, unlike the U.S. Treasury bonds, Europe lacks a ‘national’ safe asset and the equal treatment of all national government bonds as safe, prior to the crisis, has shown itself to be counterproductive.

## ***5. The main features of sovereign bond-backed securities (SBBS)***

### ***5.1. Designing features of the SBBS; comparison with other types of bonds***

Considering this background, Brunnermeier *et al.* (2012) then proposed the creation of a new class of synthetic bonds – the SBBS – initially labelled as ***European Safe Bonds*** (ESBies): they are *European*, because they are issued by a European Debt Agency (EDA) in line with the EU Treaty; they are *safe*, by being designed to minimize the risk of default; they are *bonds*, because freely traded in markets and held by investors and central banks.

The idea is to use the techniques of securitization, diversification and tranching to engineer an instrument with an extra safety and liquidity premium in the market, without involving debt mutualisation (Riet, 2017). In fact, such bonds combine elements of sovereign bonds, securitized bonds and covered bonds (ESRB, 2018): *i*) They are like sovereign bonds, because cash flows that accrue from these SBBS derive exclusively from the underlying sovereign bonds; *ii*) They are like securitized

and covered bonds, because they are issued by a dedicated entity with no previous trading or indebtedness - this entity would be protected from default, in short, be bankruptcy-remote.

For this objective, an SPV – which could be governed by the private or public sector – acquires a maximized portfolio of government bonds from all euro area countries with market access in a fixed proportion (e.g. the weights could be derived from relative GDP or the ECB's key capital). Against this portfolio as collateral, two tranches of a synthetic bond would be issued (Riet, 2017): *i*) A relatively large tranche of senior bonds (ESBies) with a senior claim on the cash-flow from this pool of government bonds and; *ii*) A relatively small tranche of European Junior Bonds (EJBies) with a junior claim on these payments. Losses on the SPV's portfolio would be first borne by EJBies holders, leaving taxpayers save. The SPV would be able to generate a 'risk-free' yield curve if ESBies were offered with a range of maturities (Riet, 2017).<sup>11</sup>

Further designing issues are also considered. The first relates to possible 'sub-tranching' in order to cater for different classes of investors. The junior bond could be sub-tranched into a first-loss 'equity' piece and a mezzanine tranche each catering to a different clientele: risk-averse investors, such as insurance companies and pensions funds would be attracted by the mezzanine tranche, whereas other specialized

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<sup>11</sup> Brunnermeir *et al.* (2016) propose a base case for the subordination level to be set at 30%, such that the junior tranche represents 30% and the senior one 70% of the underlying face value. For a worst case scenario – strong recession -, the simulation drawn by Brunnermeir *et al.* (2016) suggests that the subordination level would be sufficient to achieve a five-year expected loss rate on the junior tranche, comparable to those of bonds issued by peripheral countries; the five-year expected loss on the senior bond would in this case be slightly lower than that of the German bund.

investors – such as hedge funds – would prefer the first-loss piece (Brunnermeier *et al.*, 2016). The second special designing feature is that ESBies are also ‘opened’ for the creation of a market for derivatives, and in particular CDSs (Brunnermeier *et al.* 2012 and Riet, 2017).

Contractual features of ESBies are also noteworthy. An important aspect relates to the obligations of the SBBS issuers: such obligations cover ‘all states of the world’ which distinguishes them from conventional sovereign bonds that typically define a fixed payment stream in every state of the world (ESRB, 2018, p. 17). As such, investors’ rights to receive payments result in this case from the contractually agreed priority of the payment waterfall (ESRB, 2018). On the other hand, contracts would provide for investors to agree with limited recourse and non-petition provisions, limiting their claims against the issuing entity to the assets secured in their favour (*Idem*, 2018). Finally, in the event of debt restructuring, sovereign bonds in SBBS pools must be treated similarly as those held by investors directly, ensuring a strong price relationship between the SBBS replicating portfolio and a diversified portfolio of sovereign bonds held directly (ESRB, 2018).<sup>12</sup>

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<sup>12</sup> A remaining aspect concerns the regulatory treatment of sovereign exposures. Under the current framework, SBBS would be treated as securitized products entailing subordination of credit risk. This means an unfavourable treatment in comparison to the underlying sovereign bonds: for banks and for insurance corporations (and pensions funds), holding a securitized product rather than the underlying portfolio gives rise to higher capital requirements (ESRB, 2018). So, if an enabling regulation for SBBS is adopted in the future, banks could hold senior SBBS

Let me now address two alternative proposals to ESBies. The first one points to the creation of *E-bonds* (Leandro and Zettelmeyer, 2018). These bonds would be issued by a supranational entity (to cover the financial needs of the euro area) and backed by a portfolio of senior claims towards these same countries. One referred advantage of E-bonds in comparison to ESBies is that safety would in this case be related to the intermediary itself and not to the specific tranche of the bonds issued by the intermediary (Lannoo and Thomadakis, 2019). Indeed, Zettelmeyer and Leandro (2019) clarify that these E-bonds imply ‘safety’ (they are covered bonds) but not ‘tranching’ (so they are not a securitization instrument).

The second proposal, from Acalin (2019), aims at implementing a new class of bonds that – in an innovative fashion – combines securitization with equity-type elements in the respective liability structure (that is, the indexation of the payoff structure to economic growth). An EDA (e.g. the ESM) would ensure coordination of the debt issuance in Europe. Each country would issue GDP indexed bonds up to 60% of their own GDP; above this threshold, countries would continue to issue individual traditional plain-vanilla bonds. On the assets side of the respective balance sheet, the EDA would hence buy GDP indexed bonds from euro area countries: the sovereign risk is not priced since the expected return of such bonds would be equal to the return of plain vanilla bond over the maturity of the bond. On the liability side, the EDA would then issue two kinds of bonds: a European safe asset (paying a fixed interest rate) and a European junior asset (paying a variable interest rate) (Acalin, 2019, p. 79). The latter asset carries all GDP risk: if euro area growth is higher than that (rather than sovereign bonds directly) to mitigate the impact of those changes in the regulatory treatment of sovereign exposures on bank capital requirements.

expected, then junior bonds will pay more, and the opposite occurs when GDP growth is lower than expected.

Table 2 provides a comparison of ESBies with these two other examples of safe assets in the EMU, and also with typical securitization instruments (e.g. CDOs) used in private (debt) markets.

**Table 2 – SBBS vis-à-vis other EMU safe assets and typical securitization**

<b>Designing features</b>	<b>Typical securitization</b>	<b>SBBS (EBies)</b>	<b>E-bonds</b>	<b>GDP indexed securities</b>
Originator	Banks (lenders)	Sovereign creditors (including domestic banks)	<i>Idem</i>	<i>Idem</i>
Securities issuing institution	Banks Usually SPVs	EDA (e.g. ESM)	<i>Idem</i>	<i>Idem</i>
Pool of assets	Claims against private agents	Sovereign bonds issued by EMU member countries	<i>Idem</i>	<i>Idem</i>



Payoff structure	Redistribution of the income stream from the underlying mortgage pool among bonds that differ (in principle) by the seniority of their claims.  No equity-based elements or risk-sharing in the payoff structure.	Redistribution of the income stream from the underlying debt pool among bonds that differ (in principle) by the seniority of their claims.  No equity-based elements or risk-sharing in the payoff structure.	Redistribution of the income stream from the underlying debt pool but with no seniority structure.  No equity-based elements or risk-sharing in the payoff structure.	Redistribution of the income stream from the underlying debt pool that differ by the seniority of their claims.  Equity-based elements or risk-sharing in the payoff structure: junior tranches indexed to GDP growth.
Seniority elements (e.g. through tranching)	Not, for simple covered bonds.  Yes, for structured instruments: CDOs.	Yes.	No.	Yes.
Possibility for derivatives	Yes (e.g. CDSs)	Yes (e.g. CDSs)	Not explicit.	Not explicit.

Source: The Author (2019)

## ***5.2. Applicability of the OTD model to SBBS and possible shortcomings of securitization in the sovereign debt market***

The same arguments that have sustained securitization in private (banking) markets should, apparently, be verified in the case of securitization of cash-flows associated with sovereign debts. Recall that the main argument in favour of securitization was the need to address maturity mismatch in the underlying debt markets and at the same time to ensure liquidity. Banks were able to put aside a number of loans from their balance sheet that could put pressure on their capital ratios without necessarily resolving all liquidity needs. The OTD model explains this relationship very well: banks as originators pool loans, and then tranche them and sell them via securitization (notably through SVPs).

Securitization could also foster risk-sharing both geographically and functionally. In this latter case, this would be so because when compared to a single mortgage, an asset that is backed by a package of mortgages benefits from diversification of default risks across the different mortgages of the package (Hellwig, 2009). Securitization makes sense, because it uses a multiplicity of initial debts, and through packaging it ensures the dissemination and minimization of default risk. Ultimately, the resultant assets gain a life of their own (regardless of the compliance with the underlying debt contracts): as contractual obligations cover all states of the world, when issuers respect state-contingent obligations, default cannot in principle occur.

The logic of the OTD model can be applied, *ceteris paribus*, to securitization of cash-flows associated with sovereign debts. It is not a pure OTD model – as indeed it was not with regard to the MBSs market (*supra*) – and implies some adjustments. Firstly, the pool of debt loans is narrower than in the case of typical securitization

instruments: unlike the MBSs market, marked by a high multiplicity of underlying loans, the number of debts is here not as fragmented, since initial debtors are also in a more reduced number (coinciding with the sovereign debtors in the EMU) – this can affect the capacity for risk-sharing of the instrument itself. Secondly, although it is true that securitization on the sovereign debt markets is also meant to alleviate (domestic) bank balance sheets from (sovereign) debts that can show themselves to be non-performing - coping with the ‘doom-looping’ between sovereign and banking debts - the fact is that banks tend to keep some ‘skin in the game’. Recall that this was one of the problems with the business model of securitization prior to the subprime crisis: banks retained some skin in the game. The same happens here, even if for different reasons: the creation of European safe assets will not fully eliminate national government debt/bond markets. Thirdly, the minimization of default risk is not entirely guaranteed (as it was not, after all, in the subprime market): in the case of crisis yields in high risk assets becoming highly positively correlated reflecting the dynamics of contagion; simultaneously, as investors are looking for safe havens, the yields in the safe assets tend to decline (De Grauwe and Ji, 2018).<sup>13</sup> Finally, securitization - by ensuring pooling of assets and an equal treatment between creditors (including SBBS investors) – can after all prevent debt-restructuring processes, which for highly EMU indebted countries can become highly problematic in crisis situations (a new role for CACs is hence essential).

The design of the SBBS should moreover consider additional problems that were present in the subprime crisis. Amongst those problems, worthy of highlighting are: *i)*

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<sup>13</sup> In extreme market events, the investor appetite for the junior tranche may dry up, affecting the interest for the asset as a whole (Lannoo and Thomadakis, 2019).

The erosion of the quality of collateral – the cash-flow related to the repayment of debt; *ii*) Statistical manipulation and the role of rating agencies; *iii*) The contractual obligations of the issuing entities – in many cases an SPV (as it is, in fact, the EDA in the SBBS proposal); *iv*) Non-transparent and complex processes of securitization (assessing the implications of eventual sub-tranching); *v*) The usage of swap instruments, in particular of OTC derivatives.

## **6. Conclusions**

Safe assets can ensure – especially in normal times – an efficient functioning of the financial markets in the EMU and promote the pooling of risks in the sovereign debt market. They can, in such times, break the ‘doom-looping’ between sovereign and bank debts, offering the latter an alternative to sovereign assets.

On more general grounds, euro safe assets may also play a role to cope with the so-called ‘safety trap’ – a shortage of safe assets when monetary policy has reached the zero lower bound (Caballero and Fahri, 2014), apparently the current situation in EMU. The challenge is to promote the supply of safe assets outside the frontiers of monetary policy as a way to overcome the shortage of safe assets. In most of the proposals, the EDA in charge of issuing safe assets (e.g. the ESM) is a non-monetary policy agency. The EDA can indeed be at the frontier of a true fiscal institution in Europe.

Despite these alleged benefits, the creation of safe assets involves some shortcomings. Once again, lessons from the subprime crisis should not be forgotten. Besides all the abovementioned problems, the subprime crisis revealed another, probably more significant, pervasive effect. In fact, securitization had not been capable of

eliminating the problem of housing mortgage loans (designed as mortgage loans with unconventional terms, e.g. adjustable interest rates) nor did it solve the problem of access to housing from lower income and weak households in the U.S.

When admitting the transposition of securitization – *ceteris paribus* - to the sovereign debt markets in Europe, still facing important challenges especially in problematic countries (e.g. Greece, Portugal), the question is whether securitization can effectively help to overcome or to conceal the underlying problem of indebtedness and the structural problems (weak economic structures) that remain in those same countries. It is not ensured (despite the risk-sharing properties of the SBBS) that in a major crisis event a flight to national safe havens, freezing financing to those countries, is effectively prevented. If that flight happens, ‘low-income’ sovereign debtors will after all reveal their ‘subprime’ national debt.

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